

base of front, the ocelli also surrounded with fuscous; the head is also mottled with very pale ochraceous, and the eyes are dark castaneous. Pronotum with the margins pale ochraceous, an indistinct central fascia margined with ochraceous, with an obscure castaneous spot on each side, and four oblique incisions on disk, two on each side of central fascia. Mesonotum with two obscure central obconical spots margined with greenish, the lateral margins and the basal cruciform elevation also of the same colour. Abdomen with the stigmata and the segmental margins castaneous. Body beneath ochraceous; apex of the rostrum, basal and apical annulation to tibiæ, apices of the tarsi, and penultimate abdominal segment castaneous. Tegmina pale hyaline, with tale-like reflexions; venation alternately ochraceous and fuscous; costal membrane and a small costal spot at base of upper-ulnar area ochraceous, basal claval area greyish opaque; transverse veins at the bases of the second and third apical areas slightly infuscated. Wings as tegmina, but unspotted.

♂. Long. excl. tegm. 25 millim.; exp. tegm. 65 millim.

*Hab.* Sumatra (*Forbes*), March.

The body is moderately robust; the abdomen broad, narrowed at apex. The lateral margins of the pronotum are slightly sinuated. The face is broad and tumid, with a central and very obscure levigate carina, but not sulcated; transverse ridges not extending to apex. Rostrum just passing the posterior coxæ. Opercula very small, obliquely rounded, not reaching the basal segment of the abdomen.

This is one of a series of small species of *Pomponia* found in the Eastern islands. It is probable that the colour is, or often is, green, and not ochraceous, during life.

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XXIV.—*On the Blood-corpuses of the Cyclostomata.*

By Professor D'ARCY W. THOMPSON, Dundee.

It is commonly stated in the text-books, for example in Huxley's 'Anatomy of the Vertebrata' (p. 100), that the blood of the Cyclostomes differs from that of all other fishes in the *round* instead of *oval* shape of its red corpuscles. Gulliver, on whose authority most of the text-book statements concerning the size and shape of blood-corpuses rests, says, in his edition of Hewson's works (p. 234), "In the Cyclostomes the corpuscles are of the same figure as those of Man, and only slightly larger." Accordingly I was more than a little surprised, on examining some living *Myxina* lately, to

find their red blood-corpuscles *large and oval*, and similar to those of the skate or dogfish. On consulting Johannes Müller (Vergl. Anat. d. Myxinoiden) I found that he had noted and figured the oval corpuscles of *Myxine*, but without measuring them or calling attention to their points of contrast with those of *Petromyzon*. Dr. Günther, in his article "Ichthyology" in the 'Encyclopædia Britannica,' says accurately that "the corpuscles of *Petromyzon* are round," but proceeds to say that the corpuscles of the Cyclostomes are exceptionally small, taking it for granted doubtless that the two genera agree in this respect.

I find the red corpuscles in *Myxine* to be thin, flattened, oval plates, with a central nucleus, which is sometimes round, more often elongated and rod-like.

Their dimensions are as follows:—

	millim.
Length .....	·025 to ·028
Breadth.....	about ·01
Thickness.....	,, ·003

The nuclei stain very quickly and intensely with magenta. The white corpuscles are of about the same size as those of man. They are irregular or amœboid in shape, and have a very large granular nucleus. Sometimes the whole corpuscle is granular, and then appears to be devoid of a nucleus. The white corpuscles are remarkably numerous, being not less than three fourths as numerous as the red, and sometimes equalling them in number.

In *Petromyzon marinus* I find the red blood-corpuscles to be circular, as stated. They measure about ·013 to ·014 millim. in diameter. Gulliver gives ·019 for *Petromyzon*; but he very probably used another species. The nucleus is small, placed not in the centre, but usually near the edge of the disk, and stains very slowly and feebly in magenta or hæmatoxylin. The white corpuscles are even more numerous than in *Myxine*, being actually thrice or four times as many as the red. Their nuclei are small and stain well, and forms transitional in shape and size to the red corpuscles seem to be recognizable. Some indeed are round, clear, with excentric nucleus, and similar in size to the red corpuscles; others are quite small, one half the diameter of the former, and with a central nucleus; others, again, are large, granular, and with the nucleus disproportionately large.

In both genera the red corpuscles are very easily deformed. The corpuscles of *Myxine* often seem to tail off into a point

at each end, and those of *Petromyzon* are often (especially in very fresh specimens!) irregular in outline.

We thus find that the blood differs in almost every point in these two animals, viz. in the size and shape of the red corpuscles and in the character of their nuclei, and that *Petromyzon* in these respects stands alone, while *Myxine* resembles other fishes, and especially the Elasmobranchs and Dipnoi, whose corpuscles are much larger than those of Teleostei. But the two genera agree in the extraordinary number of the white corpuscles, which in most fishes are, if anything, exceptionally scanty.

I did not take the opportunity of estimating the number of the red corpuscles in either case; but they are certainly exceptionally few, especially in *Myxine*.

One very curious point still remains. Shipley, in his recent paper on the development of *Petromyzon* (Quart. Journ. Micr. Sci., Jan. 1887), states, without further remark, that the red corpuscles of the Ammocete (*P. fluviatilis*) are oval; and in writing to me he confirms the statement that the corpuscles of the Ammocete differ altogether in size and form from those of the adult *Petromyzon*. This observation is, I fancy, quite novel, and it recalls the similar but far less striking fact that the corpuscles of the young tadpole were long ago observed (by Gulliver) to differ somewhat in size and shape from those of the frog. But the noteworthy point now is that *Myxine* possesses red corpuscles similar to those not of the adult, but of the larval lamprey, which in many ways it resembles otherwise.

### XXV.—Note on a new Type of Compound Eye.

By F. E. BEDDARD, M.A., F.Z.S.

THE minute structure of the eye in the Cymothoidæ has been treated of by Johannes Müller\*, and more recently by J. F. Bullar†; the observations of the older author principally concern the cuticular lenses and the vitreous body, and are immaterial to the present note. Bullar has described and figured the eye of *Cymothoa* in some detail; his results on the whole show no great difference from the eye of *Porcellio*, which has been investigated by Grenacher and described in

\* Meckel's 'Archiv,' 1829.

† Phil. Trans. 1878.